TABLE 1
BRUSH SPRING ANALYSIS
COMPARISONS OF BRUSH SPRING TENSION

BRUSH PART NUMBER	STARTER GENERATOR	SPECIFIED TENSION/ OVERHAUL MANUAL	BRUSH AREA SQ. IN.	SPRING PRESSURE LOW OZ/SQ IN	SPRING PRESSURE AVOERAGE OZ/SQ IN	SPRING PRESSURE HIGH OZ/SQ IN
N1828-1	23032-1022	40-56 oz	.294	136.05	163.26	190.48
N1828-1	150SG121Q	32-48 oz	.294	108.84	136.06	163.27
23032-1380	23032-010	32-48 oz	.201	159.20	199.00	238.81
150SG1009-5	150SG111Q	32-48 oz	.201	159.20	199.00	238.81
N1830-1	23081-018	28-40 oz	.237	118.14	143.46	168.78
N1830-1	200SGL118Q	30-39 oz	.237	126.58	140.57	164.56
N1831-1	23048-001	40-55 oz	.397	100.76	119.65	138.54
N1831-1	250SG111Q	40-55 oz	.397	100.76	119.65	138.54
N1831-1	23079-000-1	50-64 oz	.397	125.94	143.57	161.21
N1831-1	300SGL119Q	40-55 oz	.397	100.76	119.65	138.54
N1831-1	300SGL116Q	40-55 oz	.397	100.76	119.65	138.54

Example: Using the table above, calculate the tension for a new brush spring that matches the desired tension in a known brush spring.

A new brush spring will be designed that will apply the same pressure on the brushes as the brushes in a 300SGL116Q. From the table above, the pressure on the brushes of a 300SGL116Q Starter-Generator = 119.65 oz/sq in.

If the size of the brush is known, such as the N1829-1 Brush = .201 sq in.

Stress X Area = Force

Then the tension on the brush spring is: 119.65 oz/sq. in. X .201 sq. in = 24.05 oz